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PACED SERIAL ADDITION:

**An Investigation into the Nature of the Cognitive Processes Involved
in PASAT Performance**

Thesis presented in partial fulfilment
of the requirements for the degree
of Master of Arts in Psychology
at Massey University

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1995

ACKNOWLEDGEMENTS

This work is dedicated to my late father, Brian.

I wish to express my appreciation to Dr John Podd for his support and guidance in his capacity as supervisor for this thesis. I also wish to acknowledge the support, encouragement, and tolerance I received from my family and friends, especially Mary.

I am also grateful to Dr Janet Leathem (Psychology Clinic Director and Senior Lecturer, Psychology Department, Massey University) for her help in the literature search, Mr Bernard Norman (Senior Clinical Psychologist, Manawaroa Centre for Psychological Medicine) for his advice on the experimental design and the loan of materials and equipment, Mr Harvey Jones (Computer Programmer, Psychology Department, Massey University) for his assistance in technical matters, and Dr John Spicer (Senior Lecturer, Psychology Department, Massey University) for his advice and assistance concerning the statistical analyses.

I also wish to thank all the individuals, students of Massey University, who participated as subjects in this research.

ABSTRACT

The Paced Auditory Serial Addition Test (PASAT) of Gronwall and Sampson (1974) is a neuropsychological test of attention used in both research and clinical settings (Lezak, 1983). However, a review of the literature revealed that the cognitive processes and attentional factors underlying PASAT performance are not well understood. Two experiments were conducted with the aim of providing further empirical and theoretical insights into PASAT performance. In Experiment 1, 16 subjects (8 male and 8 female) performed auditory and visual versions of a shortened paced serial addition task. It was found that PASAT performance in the visual stimulus modality was superior, but that, as indexed by accuracy and error scores, the pattern of performance as a function of the rate of stimulus presentation (1.2, 1.6, 2.0, and 2.4 s) was similar. These results are consistent with the idea that the nature of the cognitive processing involved is independent of stimulus modality. The design of Experiment 2 was the same as the first, except that divided field stimulus presentation was used in an attempt to test two opposing theories of attention. The results were not consistent with the hypothesis. The findings of both experiments were discussed in terms of the possible role of attention deficits in PASAT performance. An interesting finding was that the superior performance of male subjects in Experiment 1 was reversed in Experiment 2. This differential effect for divided field stimulus presentation as a function of gender may be partly accounted for by differing degrees of cerebral lateralisation for males and females.

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